

CLAIMS

1. A NO<sub>x</sub> removing composition for use as a translucent coating on construction material surface, comprising at least:

- 5           a) photocatalytic titanium dioxide particles having at least a de-NO<sub>x</sub> activity,  
              b) particles having a de-HNO<sub>3</sub> activity, and  
              c) a silicon based-material in which said particles are dispersed,  
wherein said photocatalytic particles have a crystalline size ranging from 1 to 50 nm and  
particles of a) and b) being present in an amount lower than 20% by weight of the total  
10 weight of said composition.

2. The composition according to claim 1, wherein photocatalytic particles include at least anatase form of titanium oxide, rutile form of titanium oxide or a mixture thereof.

3. The composition according to anyone of claims 3 to 4, wherein the  
15 titanium dioxide particles are predominantly the anatase crystalline form.

4. The composition according to claim 3, wherein the crystalline titanium dioxide particles exhibit a mean size from 1 to 50 nm, in particular from 2 to 30 nm, more particularly from 5 to 20 nm.

5. The composition according to anyone of claims 1 to 4, wherein the  
20 photocatalytic particles have a surface area per gram higher than 30 m<sup>2</sup>/g.

6. The composition according to anyone of claims 1 to 5, wherein the photocatalytic particles are present in an amount of 0.1 to 15%, preferably 1 to 12%, and most preferably 2 to 10% by weight (expressed in dry matter) of the total weight of said composition.

25           7. The composition according to anyone of claims 1 to 6, wherein de-HNO<sub>3</sub> particles include basic compounds.

8. The composition according to claim 7, wherein de- HNO<sub>3</sub> particles include calcium carbonate, zinc carbonate or a mixture thereof.

30           9. The composition according to claim 8, wherein the de-HNO<sub>3</sub> particles are present in an amount of 0.05 to 15%, in particular of 0.1 to 1% by weight of the total weight of said composition.

10. The composition according to anyone of claims 1 to 9, wherein it includes photocatalytic titanium dioxide and de-HNO<sub>3</sub> particles in a ratio de-HNO<sub>3</sub> particles/titanium dioxide particles ranging from 0.05 to 1.2, in particular from 0.1 to 1, and more particularly from 0.2 to 0.8.

5        11. The composition according to anyone of claims 1 to 10, wherein the silicon based-material provides a polysiloxane film.

12. The composition according to anyone of claims 1 to 11, wherein the silicon based-material includes at least a polysiloxane polymer.

10      13. The composition according to anyone of claims 1 to 12 including furthermore a solvent.

14. A method for imparting self-cleaning properties towards atmospheric contaminants to the surface of a material, said method comprising at least the steps of:

- applying a composition according to anyone of claims 1 to 13 onto the surface of a material, and

15      - drying or curing the composition to obtain a transparent coating thereon.